

WADI PROGRAMME FOR REHABILITATION OF
TRIBAL FAMILIES IN AKOLE TALUKA,
AHMADNAGAR DISTRICT, MAHARASHTRA

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1.0 INTRODUCTION

The Bharatiya Agro-Industries Foundation (BAIF) had submitted a project proposal for rehabilitation of 1,213 tribal families through raising of fruit and forestry plantations on 1,213 acres of wasteland in nine villages of Akole Taluka, Ahmadnagar District, Maharashtra, to the Council for Advancement of People's Action and Rural Technology (CAPART) in September 1988, for execution with financial assistance from the latter. BAIF had formulated the proposal on the basis of its experience of a composite tribal development programme in Vansda Taluka of Valsad District in South Gujarat. The total outlay for rehabilitation of 1,213 families over a five years period as worked out by BAIF was Rs. 121.22 lakhs out of which assistance sought from CAPART was to the extent of Rs. 109.10 lakhs and local contribution amounted to Rs. 12.12 lakhs.

CAPART sanctioned the project entitled "Wadi programme for rehabilitation of 1,213 families of Akole Taluk of Ahmadnagar District in Maharashtra" vide their letter No.514-22/88-PC-CAPART dated 10-02-1989 (Annexure I) to be implemented by BAIF over a period of five years at a total cost of Rs. 121.22 lakhs. As provided in the project proposal, CAPART's share as grant-in-aid for execution of the project was Rs. 109.10 lakhs and local contribution Rs. 12.12 lakhs. The implementation of the project commenced on April 1, 1989 according to which the scheduled date of completion would be March 31, 1994. An amount of Rs. 43.21 lakhs has so far been released by CAPART to BAIF for execution of the project.

Out of a total of 1,213 families to be covered under the project, 345 tribal families in nine villages joined the programme in the first year (1989-90) and the remaining 868 families were motivated to join the programme in the second year (1990-91). Five more villages were also added in the project area.

CAPART decided to have a mid-term appraisal of the project carried out in terms of its physical and financial achievements before releasing any further funds to BAIF. Accordingly, in May 1992, CAPART constituted a two member Expert Team with Messers O.N. Kaul and K.R. Aggarwal as its members. The terms of reference of the Expert Team were to assess the progress of implementation of the project vis-a-vis its targets, technical aspects and objectives.

The Team visited the project area between October 9-16, 1992 (Annexure II) for an on the spot evaluation of the project. The members of the team collectively or individually visited 139 Wadi plots out of a total of 1,213 (about 11.5%) in eight villages (Annexures III and IV). They also visited the kitchen gardens maintained by women of 84 families participating in the programme in Chichondi village.

During the course of field visits, discussions were held by the members of the Team with a large number of beneficiaries of the programme to elicit their views on the project and the extent of benefits accrued to them. Discussions were also held with Mr. G.G. Sohani, Vice-President, BAIF; Mr. R.L. Chowdhary, Research

Programme Coordinator (Environment and Forestry), BAIF; the project implementation staff of BAIF as also Mr. Darade, Range Forest Officer, Employment Guarantee Scheme (EGS), Ahmadnagar Forest Division (Annexure V) and information regarding the project collected from them. Attempts were also made to collect any other relevant information from other sources, which could be useful in evaluation of the project. The members also studied some earlier reports/documents on the subject which could help in preparation of this report.

The report is based on field inspections made by the members of the Team, the base line data/information collected from BAIF, CAPART and various other sources, discussions held and documents studied. The Team would, however, like to place on record that the time allowed for field inspections and collection of information, for a project of this magnitude, was short especially in the context of extensive dispersion of Wadis and their location in the interior on undulating and steep slopes posing difficulties in transport and communication. However, every effort has been made to have an objective appraisal of the project in the very limited time at the disposal of the Team.

2.0 PROJECT AREA AND THE PEOPLE

The project area is situated in the north-western corner of Akole Taluka, Ahmadnagar District, Maharashtra. The area is known for its tourist attractions like Bhandardara Dam on river Pravara, Randha Waterfall and Kalsubai peak. The area forms a part of the Western Ghats marked by high hills rising to an elevation of over

1,600 m (Kalsubai is the highest peak), characterised by undulating hilly terrain and rolling topography.

There is wide variation in the annual average rainfall of the area with an average low and high of 800-1,200 mm and 2,500-3,000 mm respectively. The project area can be roughly divided into three clusters on the basis of rainfall and vegetal cover (Table 1).

Table 1 : Project Villages by Clusters

S. No.	Cluster description		Villages
	Rainfall	Vegetal cover	
1.	High rainfall (2,500-3,000 mm)	Good	1. Chichondi 2. Randha (BK) 3. Randha (KH) 4. Waki 5. Kodni
2.	Medium rainfall (1,500-2,000 mm)	Medium	1. Manhere 2. Ambevangan 3. Ladgaon
3.	Low rainfall (800-1,200 mm)	Poor	1. Titvi 2. Devgaon 3. Pabulwandi 4. Shelvihire 5. Pimparkane 6. Dongarwadi

Bulk of the rainfall is received during the monsoon months of June to September with some pre-monsoon showers and occasional winter rainfall. Most of the rainfall is lost as run-off on the slopes. There being no faults in the basaltic nature of the rocks, hardly any ground water is available in the area. Surface water in nallahs and dug wells is seasonal and the area faces an acute scarcity of water even for drinking purposes during the summer season.

The soils of the high rainfall villages are brown to dark brown, clayey in texture having shallow depth mixed with boulders and extensive rock outcrops on hill slopes. Soils are, however, deep to very deep in the flood plain alluvial area in the valleys. Light brown, sandy and murum soils occur in the villages with low rainfall. These soils are poor in organic matter content.

The forests of the region are predominantly of tropical moist and dry deciduous types degraded into scrub and savannah forms through repeated biotic interventions. The area once densely forested has now few patches of vegetation left on the hill slopes. This has led to heavy soil erosion resulting in negligible soil cover on the hills and at some places even the bed rock is exposed. The natural vegetation consists mainly of trees like Terminalia tomentosa (sadhda), T. Chebula (hirda), T. belerica (bahera), jamun, mango, babul, Lantana (tantani) Zizyphus mauritiana (ber) and karaunda (carissa). The Maharashtra Forest Department has raised plantations of mango (wild), jamun, Sadhda, hirda, bahera, bamboo (Dendrocalamus strictus), Australian babul (Acacia auriculiformis), Casuarina, shisham, gulmohar and bhendi (Thespesia populnea) on the road sides. Bamboo and Casuarina are coming up very well in the area. Cashew is also being raised by the Forest Department and initial trials show that these plantations are likely to come up very well.

The project villages have over 90% tribal population belonging to Mahadeo Koli tribe. Average land holding per family is 3-4 acres, most of which is on hill slopes lying unused. The cultivable land owned by these families is the lowland in the

valley areas. Silt trapping in nallah beds is a traditional practice and at many places nallahs have been transformed into small paddy fields. Some tribals have terraced their lands on hill slopes on a small scale.

There being no sources of irrigation, agriculture is mostly rainfed, paddy being the main crop. Cultivation of coarse millets like nagli, nachni, varai and kharsani (oil seed) is done on the hill slopes. Vegetables and pulses are grown in the back yards of the houses and on bunds of paddy fields during monsoon.

With no opportunities for work after the monsoon, these tribals migrate and seek employment as low paid labourers in nearby places. In order to check their migration in search of employment and improving their quality of life, BAIF undertook the programme of their rehabilitation through establishment of Wadis, designed to provide them gainful employment throughout the year and improve their socio-economic status. The programme is being implemented in 14 villages of Akole Taluka covering a total of 1,213 families (Table 2).

3.0 OBJECTIVES OF THE PROJECT

The main objective of the project is the total rehabilitation of tribal families on their lands through development of Wadis by way of plantations of fruit and forestry

Table 2 : Project Villages and Number of Families Covered

S.No.	Name of Village	No. of families covered
1.	Ambevagan	90
2.	Chichondi	84
3.	Devgaon	91
4.	Dongarwadi	45
5.	Kodni	36
6.	Ladgaon	91
7.	Manhere	214
8.	Pabulwandi	34
9.	Pimparkane	101
10.	Randha (BK)	107
11.	Randha (KH)	24
12.	Shelvihire	58
13.	Titvi	178
14.	Waki	62
Total		1215

NOTE: Two families from Devgaon village who had enrolled their names to participate in the programme did not initiate various activities envisaged under the programme. Consequently two more families were enrolled instead. As the names of two families opting out of the programme have not been deleted so far from the Central Data Base of BAIF, it wrongly states that 1,215 families are participating in the programme whereas actually 1,213 families are participating.

trees and cultivation of intercrops, thus obviating their migration to other areas in search of employment. The other objectives include:

- Comprehensive provision of inputs to enable a family to reach a standard above the poverty line at the end of five years.
- Cultivation of intercroops such as pulses, oil seeds and vegetables for home consumption to help improve the nutritional intake thereby achieving a better health status of the family and marketing of any surplus to earn additional income.
- Making 1,213 acres of marginal land productive and prevent soil erosion.
- To establish an environmentally sound ecosystem in the project area.
- Impounding of invaluable run-off which at present flows to the sea and use it for irrigation.
- Generation of 4,36,680 (360 X 1,213) man-days of work per year for the project period and later.
- To provide a model for development of wastelands in the area, on the basis of which more and more families would be motivated to develop their unused land.

4.0 SELECTION OF WADI PLOTS

About 60 to 70% of the land owned by the tribals is degraded wasteland on hill slopes which is not fit for cultivation. This land which was mostly used for grazing has been taken up for development under the Wadi programme. Moreover, most of the plots selected are in the interior areas with a view to provide an opportunity to the poorest of the poor (who normally have their land in the interior), to participate in the programme.

5.0 THE WADI PROGRAMME

The rehabilitation of tribals through development of Wadis consists of land development, live hedge fencing, plantations of fruit and forestry species, inter-cultivation, green manuring, inter-cropping, aftercare of fruit and forestry plantations, water resources development and input supply.

5.1 Land Development

Various land development measures taken up consist of contour trenches-cum-bunds, gully plugging, crescent shaped trenches for fruit trees and providing vegetative cover on contour bunds to stabilise them. Contour bunds and trenches reduce velocity of water, check soil erosion and help infiltration capacity of the soil thus increasing its moisture content. Gully plugging checks further formation and/or widening of gullies. Crescent shaped trenches of about 5 ft. length and 1 ft. depth dug on the upstream and downstream of fruit trees help in harvesting of run-off water and increasing the moisture regime in the root zone. The vegetative cover in the form of planting a wide range of pulses and oil seeds crops, vegetables and grasses such as vetivar (khas grass) strengthens the contour bunds.

5.2 Livehedge Fencing

Livehedge fencing of the Wadis has been taken up with the twin purpose of demarcating the boundaries and protection against stray animals. Locally available plants like Lantana, Agave (ghypat), Euphorbia (sabar), Jatropha curcas (mogalierand), Acacia

nilotica (Ramkanti babul), karaunda and shernirgudi have been used for the purpose.

5.3 Plantation of Fruit Trees

Mango cultivation has been adopted as the main fruit crop in the Wadis besides cashew in the low rainfall cluster. Mango seedlings have been planted at a distance of 10 m x 10 m (40 trees/acre) in pits of 1 m x 1 m x 1 m size. Each pit has been filled up with a mixture of single super phosphate, bone-meal, castor/neem cake, BHC powder, farm yard manure (FYM) and soil. Initially 5-6 mango stones are sown in these pits. Soft-wood grafting is done in-situ on one year old best growing seedling. Subsequently two of the better growing seedlings out of the remaining are joined to the mango graft by side grafting. After the graft is established, the remaining plants are removed from the pit.

In the low rainfall cluster, where mango grafts were not coming up well and the mortality was high, cashew (Vengurla - 1 and Vengurla - 4) has been introduced, as a replacement to mango, on the recommendations of the Konkan Krishi Vidyapeeth.

5.4 Forest Plantations

Planting of forestry species has been taken up in all the Wadi plots. While planting is usually done in three rows along the periphery of the plot (1,000 to 1,200 plants) in most cases, in some Wadis where portions of the periphery are rocky, planting

is done in a single row on the contour bunds. The species usually planted are Eucalyptus (nilgiri), Melia azedarach (bakain), Acacia auriculiformis, A. nilotica var. cupressiformis, Glyricidia, subabul, Dendrocalamus strictus, teak, ber, bhendi, Casuarina etc. The spacing prescribed for planting is generally 1 m x 1 m except for teak which is to be planted at a spacing of 2 m x 2 m. Planting is done both in pits (30 cm³) and trenches (2 m x 30 cm x 30 cm).

Apart from cashew being planted as a replacement to failed mango grafts, it has also been raised as a forest species at a spacing of 5 m x 5 m in some Wadis.

5.5 Intercultivation

Tractor ploughing was done in most of the Wadis. Where tractor ploughing was not possible, the tribal families were motivated to make use of the conventional plough and bullocks. Ploughing in Wadi plots was done across the slope.

5.6 Green Manuring

Sunhamp has been introduced as a green manuring crop. Many families have taken up seed multiplication of this species. Glyricidia leaves are also being used for green manuring.

5.7 Intercropping

Traditionally tribals grow coarse millets like nagli, nachni, varai and kharsani (Niger-oil seed) on the hill slopes. In addition to these, water melon, tur, sunflower, soyabean, maize

and vegetables like capsicum, brinjal, ladies finger, cucumber, gourd, bitter melon, radish and chillies have been introduced as intercrops in the Wadi plots. Stylo hamata has been introduced as cover crop on the bunds as well as inside the Wadis where other intercrops cannot be grown.

5.8 Aftercare of Fruit and Forestry Plantations

Aftercare activities taken up include preparation of basins, weeding in the basins and surrounding area, providing support and shade to the grafts, fertilizer and manure application, spraying of insecticide, fungicides (monocrotophos + Bavistin in soap solution to protect against shoot borer and fungus attack) and protective irrigation to fruit trees. Aftercare activities in forest species consist of weeding, hoeing, earthing and pruning of lower branches.

5.9 Water Resource Development

Since the project area faces acute scarcity of water during summer months, small water resources have been developed in the area, which include the following.

5.9.1 Check bunds

Small check dams have been constructed using empty cement bags filled with sand and silt in project villages. The water stored behind these check dams is used for protective irrigation of fruit plantations.

5.9.2 Stone bunds

Stone bunds have been constructed by arranging systematically the stones available locally across the nallah beds to form walls of 4 to 5 ft. height. During the monsoon, silt and other materials get deposited in the gaps and over a period of two years these stone bunds became as good as permanent dams. Such bunds have been constructed in most of the nallah beds in the project area.

5.9.3 Shallow water spots and spring development

Small water pits or springs have been identified near the Wadi plots, which are away from the nallah sites. These have been developed by deepening them for increased storage of water. At many spots deepening has involved blasting of very hard basaltic rock.

5.10 Input Supply

Various material inputs have been provided to the participating families under the programme. These include sisal suckers for live-hedge fencing, mango bud sticks for grafting and ready mango grafts (Kesar and Alphanso), cashew seeds (Vengurla-1), cashew grafts (Vengurla-4), seeds of forestry species, teak stumps, bamboo rhizomes, bhendi stumps, Stylo hamata, khas grass, Rhizobium culture, Azotobactor, blue-green algae, fertilizers and insecticides/pesticides.

6.0 OTHER PROGRAMMES/ACTIVITIES

Alongwith the Wadi programme various other developmental activities have been initiated in the project area. These include:

6.1 Savings Accounts

A saving account has been opened in a commercial bank in respect of each participant family. Payments of wages to the participants are made through the bank.

6.2 Special Income Generating Programmes for Tribal Women

These programmes include development of kitchen and herbal gardens in the backyards of the houses, mushroom cultivation and raising of nurseries.

6.3 Skill Development in Tribal Families

About 50 tribal men and women from the project area were taken to Vansda for orientation in Wadi Development Programme. Tribal youth have been trained in activities like land development, mango grafting, aftercare of fruit trees including spraying of insecticides/pesticides, intercropping and other farm operations.

6.4 Health Care

This includes creating awareness about immunization, mother-child health (MCH) and awareness about use of clean drinking water etc. in the project area.

6.5 Development of Drinking Water Sources

These include deepening of existing drinking water wells, construction of roof-top water harvesting structures, and making of check bunds across the nallahs with a view to reduce the velocity of water and increase its soil infiltration to enhance ground-water recharge.

7.0 PROJECT IMPLEMENTING STAFF

The staff responsible for the implementation of the project under the overall supervision of Additional Project coordinator is given in Annexure VI.

8.0 FINANCIAL SUPPORT

Financial support from CAPART for various components of the programme is indicated in the sanction letter issued by them on 10-2-89 (Annexure I). The total cost of the project exclusive of administrative cost is Rs. 110.20 lakhs for rehabilitation of 1,213 families, which works out to Rs. 9,085 per family. Adding to it 10% administrative cost it works out to Rs. 9,993 per family or Rs. 121.22 lakhs for 1,213 families out of which local contribution is Rs. 12.12 lakhs (10% of the total cost).

9.0 PROJECT APPRAISAL

As a result of on-the-spot study of the project, the following observations are relevant.

9.1 Project Impacts

The tribal people in Akole Taluka of Ahmadnagar District have been totally dependent on agriculture for their livelihood. They had never thought of raising plantations of either forestry or fruit trees on unused land on hill slopes for improving their socio-economic status. Many of the tribals in the high rainfall cluster having some trees on their lands have been using them for meeting their domestic fuel and small timber requirements and not for any additional income.

The idea of planting fruit and forestry trees by way of development of Wadis on hitherto unused lands has created an awareness among the tribal people about an additional source of income to them. The provision of wage component under the Wadi programme for working on their own land for their own benefits is a redeeming feature in motivating the tribal people to participate in the programme. In fact, some of the participating families have shifted to live on their Wadis (S.Nos. 37, 48 - Annexure IV). The mango and cashew trees will start bearing fruit after five to seven years and forest trees will be ready for harvesting after 8-10 years with some yields in between from the 6th year onwards. During the gestation period, apart from the wage component, the tribals will also be able to earn some income from the intercrops cultivated in the Wadi plots besides meeting their consumptive requirements of vegetables, pulses and oil seeds.

Involving women in gainful activities such as nursery raising, growing vegetables in the kitchen gardens and mushroom

cultivation and training youth in activities like land development, mango grafting, aftercare of fruit trees, intercropping and farm operations is to ensure total participation of the families to the success of the programme.

The project in totality is having a very good impact on the life style of the participating families. However, a total commitment on the part of some of the tribal families to the programme still seems to be lacking. This may be attributed to their priority for agriculture, on the lands owned by them in the lower reaches and valleys, which they consider as the main source of their livelihood. Another reason may be the wide dispersion of wadis mostly in the interior areas and hill slopes, not easily accessible causing difficulties in the implementation of the programme. BAIF would, therefore, have to make concerted efforts through extension and training to ensure better commitment of the participants in the programme to make it a success.

9.2 Conclusions and Recommendations

1. According to the model design of a Wadi plot, a total of 5,560 mango grafts (40 grafts/Wadi) in the 139 Wadis visited should have established. But successful grafts in these plots number 3,053 with 1,505 mango plants (27%) still to be grafted, the ungrafted plants being found practically in all the Wadis visited (S. Nos. 1-8, 9-11, 13, 14, 16, 19-27, 30, 32, 35-37, 41-43, 47, 48, 53-57, 59-67, 69-72, 78-80, 82, 83, 85-96, 98-104, 105, 106, 108, 110-113, 115-117, 121-139 - Annexure IV). Mango stones have yet to be sown in 55 pits (S. Nos. 15, 57, 84, 87 -

Annexure IV). There has been a high rate of mortality in the mango grafts (24%) and the failed mango pits (940 Nos.) have been planted with Cashew as a replacement. Casualties have not, however, been replaced in all the pits (S. Nos. 39, 120, 121 - Annexure IV). While grafting was in progress in some of the Wadi plots (S. Nos. 36, 42, 126, 128 - Annexure IV) at the time of inspection, it is imperative that grafting of the remaining seedlings, sowing mango stones in left over pits, and casualty replacement is completed without any further delay.

2. As the mango grafts in the project area in general and in the low rainfall cluster in particular are not coming up well and the rate of mortality in this cluster is also high, cashew should be planted as a replacement of mango in all failed pits as recommended by the Konkan Krishi Vidyapeeth.

3. In some wadis (S. Nos. 9, 63, 131, 135), mango plants have been grafted under existing trees. This is not conducive to their normal growth.

4. Due care with regard to the spacing to be maintained between mango plants and their place of planting has not been taken in some cases. In the Wadi S. No. 21 (Annexure IV), the first row of mango plants is very close to the row of forest seedlings on the boundary (distance of only 2 to 3 feet). In the Wadis at S. Nos. 2, 27, 110, 129 (Annexure IV), mango has been planted mixed with forestry species also. In the Wadis at S. Nos. 79, 92 and 97, both mango and cashew have been planted on widened bunds alongwith forestry species without any consideration for spacing. In the

Wadi at S. No. 91, both mango and cashew have been planted on the periphery and bunds alongwith the forestry species and also inside. Forestry seedlings in such cases will interfere with the normal growth of fruit trees. Further, both mango and cashew seedlings were seen planted in the same pits (S. No. 109 - Annexure IV).

5. Plots at S. Nos. 79, 92 and 97 hardly fulfill the requirements to be covered under the Wadi development programme. The major parts of these plots in the form of terraces with mild slope are already under paddy cultivation. All the fruit trees numbering 53, 40, 40 respectively and forestry seedlings numbering 900, 900 and 600 respectively (which also include 35, 20 and 15 teak) have been planted on bunds only. Whether such a high density of fruit and forestry species can grow normally is doubtful.

6. In many Wadi plots (S. Nos. 17, 19-23, 25, 26, 32, 53-56, 58-64, 66-70, 81, 83, 85, 93, 94, 98, 100, 102-104) old wild trees and bushy growth is still existing. Lantana bushes, besides livehedge fencing, have extensively intruded into the interior of the plots as weeds. These are not conducive to normal growth of fruit/forest seedlings.

7. Wild grasses have been allowed to grow freely in all the Wadis. These hamper the growth of all fruit/forest seedlings and intercrops in particular.

8. Besides the traditionally grown intercrops such as kharsani (niger), coarse millets (nagli, nachni and varai etc.) and kulit,

intercrops such as watermelon, tur, soyabean, sunflower, groundnut, maize and vegetables have been introduced, seeds for which have also been arranged by BAIF. At places (S.No. 49 - Annexure IV) Scabra and medicinal plants have also been grown as intercrops. However, their management and aftercare leave much to be desired. Weeds are allowed to grow freely and compete with the intercrops resulting in lower yields. Further, in the name of intercrops, it was observed that a few plants of crops like sunflower had been grown. It would be desirable to cultivate intercrops more intensively confining to only two or three crops in a Wadi in order to ensure better management and aftercare.

9. Sunhamp has been introduced as a green manure but its actual cultivation is confined to only four Wadis (S. Nos. 64, 75, 76, 124 - Annexure IV) out of 139 Wadis visited. Since there is deficiency of organic matter in the Wadi plots, cultivation of sunhamp and other green manure crops should be widely popularized.

10. Introduction of Stylo hamata as a cover crop in the project area (S. Nos. 16, 20, 23, 27, 28, 47, 49, 56, 64, 65, 68, 70, 75, 83, 84, 87, 91, 104 - Annexure IV) is a welcome step. Being a legume it fixes up nitrogen from the atmosphere, is used as a fodder (protein content, 16%), acts as a live mulch, reduces soil erosion and adds organic matter to the soil.

11. Keeping in view the deficiency of organic matter in the soils of the area, the participating families should be trained in compost making besides popularizing the cultivation of green manures and nitrogen fixing crops like stylo hamata. Use of

organic manures is imperative to keep the soil in good physical health.

12. For intercrops, a system of integrated use of chemical fertilizers, organic manures and biofertilizers such as Rhizobium culture, Azotobactor and blue-green algae should be developed. Although a mention has been made of the introduction of Azotobactor and blue-green algae in the project area (para 5.10), there was no indication of their use in any of the Wadis visited.

13. While there are some excellent examples of forest planting along the periphery of the Wadis with proper spacing and aftercare (S. Nos. 43, 44, 46, 47, 111, 112 - Annexure IV), a model design for forest planting is, generally, lacking and the forestry component of the programme rather weak as illustrated by the type of planting done in several Wadis. (S. Nos. 39, 106, 109, 110, 114, 130 - Annexure IV).

14. Planting was prescribed to be usually done in three rows along the periphery of the Wadis (1,000 to 1,200 seedlings/Wadi) in most cases except where the periphery was rocky, when planting had to be done in a single row on contour bunds. The spacing to be adopted was generally 1 m x 1 m (2 m x 2 m in case of teak) and planting was to be done both in pits (30 cm³) and trenches (2 m x 30 cm x 30 cm).

15. In actual practice, however, the above design has not been adhered to in many Wadis and planting has been done in one, two or even four and five rows without any consideration for spacing (S.

Nos. 13, 21, 27, 29-31, 65, 66, 68, 78, 79, 82-85, 88-92, 94, 97, 98, 100-103).

16. Though 1,000 to 1,200 forestry seedlings were to be planted in each Wadi, field inspection of 139 Wadis visited show that the number of seedlings planted vary from a minimum of 500 to a maximum of 2,140. The number of seedlings planted on some typical Wadis are given in Table 3. The survival per cent generally varies from 50 to 80 at present though it is too early to judge as the planting has been done during 1991 and 1992 rains. It must, however, be pointed out that no field records of forest planting were made available to the Team during field inspections. The figures given in Table 3 as also figures of other plantings/survival etc. are what was reported to Team members verbally by BAIF field staff.

Table 3 : Number of Forestry seedlings planted

Wadi (S.No. of Annexure IV)	No. of seedlings planted
133	500
30	600
95	700
58	800
81	900
9	1000
23	1100
24	1200
56	1300
77	1400
91	1500
103	1700
72	2140

17. The general spacing of 1 m x 1 m (2 m x 2 m in case of teak) prescribed in these plantations is too close and may not yield the

expected results in terms of the intermediate/final yields of the crop. There should have been only a single row of forestry seedlings planted on the periphery and on the contour bunds at a minimum spacing of 2 m for Eucalyptus, 3 m for subabul, Casuarina, and teak, and 6 m for bamboo (to be grown only on the periphery). These plantations have to be productive so as to give a reasonable income to the beneficiaries and close spacing in block plantations along the periphery of the Wadis is not desirable.

18. In order to obtain the desired yields, it is very important that good quality nursery stock is planted in these Wadis. There is thus a great need for effective supervision, technical guidance and training for establishment and maintenance of nurseries to produce the right type of seedlings of the right quality at the right time. Nursery seedlings need to be graded before their shifting to the planting site and only very good nursery stock should be planted. BAIF should look into this rather seriously specially that it is involved in subsidising the beneficiaries for raising of nursery seedlings for sale. (S.No.115-Annexure IV).

19. Good nursery stock coupled with good soil working, correct spacing and aftercare of seedlings (weeding etc.) would give the desired results. Aftercare of plants seems to be lacking in these Wadis.

20. At the end of about five years, when mango/cashew trees start bearing fruit, arrangements would have to be made by BAIF for marketing, sale and processing through establishment of cooperatives or otherwise. Similar arrangements would be required

for harvesting, marketing and sale of forest products (poles, timber etc.). BATF should, therefore, look into this aspect right now to ensure that the beneficiaries get the right price for their products and are not exploited by the intermediaries.

10.0 ACKNOWLEDGMENTS

The members of the Team take this opportunity of expressing their sincere gratitude to CAPART, particularly to Mr. A. Prasad, Deputy Director General, Mr. B.K. Pathak, Director and Mr. P.K. Gupta, Research Assistant, for having associated them with the project. Thanks are also due to the officers and staff of BAIF, officers of the Maharashtra State Forest Department and a large number of beneficiaries (Annexure III), for the information supplied, discussions held and other invaluable help rendered by them during field visits, without which it would not have been possible to undertake this study.

ANNEXURE I**CAPART**

Council for Advancement of People's Action
and Rural Technology
(Under the aegis of Deptt. of Rural Development, Govt. of India)
Guru Nanak Foundation Building
New Mehrauli Road, New Delhi - 110 067
Dated: 10.02.1989

No.514-22/88-PC-CAPART

The Executive Secretary
The Bharatiya Agro-Industries Foundation
'KANDHARNO', Senapati Bapat Marg
Poona - 411 016 (Maharashtra)

Sub: WADI Programme for rehabilitation of 1213 tribal families of Akola Taluka of Ahmednagar District in Maharashtra.

Sir,

I am directed to refer to the project proposal cited above and to convey the sanction of Council for Advancement of People's Action and Rural Technology (CAPART) to the extent of Rs. 109.10 lakhs (Rupees one crore, nine lakhs and ten thousand only) as grant-in-aid out of the funds provided by the Government under "Promotion of Voluntary Action in Rural Development" for execution of above cited project.

The amount sanctioned shall be utilised on the following items of work over a period of five years.

S.No.	Items of Work	Total cost	CAPART's Assistance	(Rupees in lakhs)
				Local Contribution
1.	Cost of land development, plantation and aftercare.	24.38		
2.	Raising nurseries of fruit and forest trees procurement of seeds, cutting etc.	6.06		
3.	Grafting of Superior scion on root stock.	2.42		
4.	Inter-cultivation, harrowing and green-manuring.	9.10		
5.	Raising inter-crops and support to agricultural activities through improved seeds and other inputs	7.28		
6.	Providing farm implements, land tools and farm services	6.37		
7.	Harvesting run-off rain water through check-bunds, water conservation measures and watering of fruit and forest trees.	21.23		
8.	Recurring costs of water-lifting for providing water inputs to the WADI.	33.36		
	Sub-Total:	110.20		
	Administrative Cost	11.02		
	Cost of techno-management services and other overheads @ 10%			
	Total:	121.22	109.10	12.12

The sanction is subject to the terms and conditions laid down in annexure attached.

If these terms and conditions are acceptable to you kindly return the enclosed copy of the annexure duly signed in token of having accepted the terms of grant alongwith a copy of resolution passed by your competent committee as stated in item one of the annexure. The second copy of the terms of grant can be retained by you. Kindly also furnish the physical as well as financial work plan for the implementation of project for whole project period duly broken down on six monthly basis.

Yours faithfully,

(Mahendra Pal)
ASSISTANT DIRECTOR

Copy for information to:

1. Joint Secretary (Admn.), Deptt. of Rural Development, Ministry Agriculture, Krishi Bhavan, New Delhi.
2. Secretary, Deptt. of Rural Development, Govt. of Maharashtra, Bombay - 400 032
3. Member Secretary, People's Action for Development (PAD) Maharashtra, Agriculture and Cooperation Department, Mantralaya, Bombay - 400 032
4. Chief Accounts Officer
5. Computer Division
6. Office Copy

ASSISTANT DIRECTOR

ANNEXURE II

TRAVEL ITINERARY OF MESSERS O.N. KAUL AND K.R. AGGARWAL DURING OCTOBER, 1992.

October	9	Departure New Delhi Arrival Pune
	10	Departure Pune Arrival Bhandardara Dam site
	11-13	Halt at Bhandardara Dam site for field visits
	14	Departure Bhandardam Dam site Arrival Pune
	15	Halt at Pune
	16	Departure Pune (O.N. Kaul) Arrival Delhi
	17	Departure Pune (K.R. Aggarwal) Arrival Delhi

NOTE : Mr. K.R. Aggarwal stayed back at Pune for one more day in connection with evaluation of another project on Sericulture Development being implemented by BATE with assistance from CAPART.

SUMMARY OF WADI PLOTS VISITED

S.NO.	NAME OF VILLAGE	NO. OF PLOTS VISITED
1.	AMBEVANGAN	08
2.	CHICHONDI	24
3.	MANHERE	20
4.	RANDHA (BK)	19
5.	RANDHA (KH)	06
6.	LADGAON	27
7.	PIMPARKANE	12
8.	TITVI	23
	TOTAL	139

LIST OF WADI PLOTS VISITED

SL. NO.	FMYCODE	FAMILY NAME
(1)	(2)	(3)

VILLAGE - AMBEVANGAN

TRIBE - MAHADEO KOLI

1.	020010	Chandar Dhavala Dhande
2.	020014	Dasharath Ramji Bhambere
3.	020022	Dunda Ravji Pofale
4.	020038	Khandu Mahadu Dhande
5.	020043	Laxman Dhondu Dhande
6.	020048	Laxman Shankar Dhande
7.	020057	Namdeo Tula Dhande
8.	020087	Valu Dhavala Dhande

VILLAGE - CHICHONDI

TRIBE - MAHADEO KOLI

9.	020091	Arjun Kisan Dhangar
10.	020095	Balu Shivram Dhangar
11.	020100	Buda Dagdu Rongate
12.	020107	Chindhu Vitthal Dhanagar
13.	020110	Devram Dhavala Madhe
14.	020112	Dhunda Vitthal Dhangar
15.	020113	Ganpat Santu Nadekar
16.	020114	Gopala Shankar Gabhale
17.	020115	Hari Bairu Madhe
18.	020119	Kalu Mahadu Lote
19.	020123	Kisan Yeshwant Madhe

(1)	(2)	(3)
20.	020125	Laxman Ghama Khokale
21.	020126	Laxman Sakharam Lote
22.	020127	Madhukar Kisan Dhangar
23.	020128	Mahadu Ghama Khokale
24.	020134	Murlidhar Bairu Ide
25.	020136	Murlidhar Sakru Madhe
26.	020145	Rajendra Murlidhar Madhe
27.	020146	Rambhau Shravana Dhangar
28.	020150	Ramesh Gopala Gabale
29.	020151	Rangnath Namdev Muthe
30.	020153	Sakhru Bhoru Madhe
31.	020166	Suresh Gopala Gabhale
32.	020171	Vitthal Balu Madhe

VILLAGE - MANHERE

TRIBE - MAHADEO KOLI

33.	020448	Bhagabai Soma Gabale
34.	020453	Bhau Laxman Gabale
35.	020461	Bhoru Shiva Gabale
36.	020483	Dattu Kisan Gabhale
37.	020500	Eknath Rama Gabhale
38.	020501	Eknath Tukaram Gabhale
39.	020507	Gorak Bhau Gabhale
40.	020521	Kalu Dagdu Koktere
41.	020524	Keru Luma Gabale
42.	020529	Kisan Mangla Gabale
43.	020541	Laxman Tukaram Gabale
44.	020552	Maruti Sakaram Gabale

(1)	(2)	(3)
45.	020563	Namdev Bhima Gabhale
46.	020564	Namdev Keru Gabale
47.	020568	Navji Bhairu Gabhale
48.	020589	Rama Dagdu Gabhale
49.	020633	Tukaram Bhoru Gabhale
50.	020636	Tukaram Punha Gabale
51.	020649	Vitthal Mangala Gabale
52.	020651	Vitthal Shankar Gabhale

VILLAGE - RANDHA (BK)

TRIBE - MAHADEO KOLI

53.	020793	Banubai Kalu Patekar
54.	020796	Bhaga Sakharam Bhoir
55.	020797	Bhau Bhoja Bhoir
56.	020809	Devram Govinda Patekar
57.	020811	Devram Kamala Bhoir
58.	020814	Dhavala Abba Patekar
59.	020817	Dhunda Babu Bhangare
60.	020825	Govinda Bhau Patekar
61.	020826	Govinda Devram Patekar
62.	020852	Murlidhar Sakharam Pore
63.	020855	Nana Mahadu Patekar
64.	020870	Savleram Kondaji Patekar
65.	020874	Shivram Laxman Patekar
66.	020875	Shravana Bhoja Bhoir
67.	020877	Shravana Gopala Patekar
68.	020879	Soma Janku Patekar

(1)	(2)	(3)
69.	020888	Vitthal Ganga Thigale
70.	020890	Vitthal Rama Patekar
71.	020892	Yeshu Bhoja Bhoir
VILLAGE - RANDHA (KH)		TRIBE - MAHADEO KOLI
72.	020894	Bhaurao Savleram Kate
73.	020900	Gangaram Soma Kathe
74.	020901	Ganpat Soma Kathe
75.	020902	Govinda Saga Lohare
76.	020911	Nana Soma Kathe
77.	020912	Rama Soma Kathe
VILLAGE - LADGAON		TRIBE - MAHADEO KOLI
78.	020350	Balu Ananda Dhongde
79.	020356	Chindu Budha Bhalinge
80.	020363	Dhondu Pandu Dhangar
81.	020365	Dilip Govinda Muthe
82.	020369	Goga Manajee Dhongde
83.	020371	Gulab Kalu Muthe
84.	020372	Hansrao Shankar Shelke
85.	020373	Hanumanta Chindu Muthe
86.	020375	Hari Sakaram Shelke
87.	020376	Kalu Shankar Muthe
88.	020377	Kashinath Ananda Dhongde
89.	020380	Khandu Hanmantha Shelke
90.	020381	Khandu Shankar Dhongde
91.	020382	Kisan Maruti Gawari

(1)	(2)	(3)
92.	020387	Kundlik Tukaram Dhongde
93.	020395	Maruthi Damu Sonule
94.	020397	Maruthi Laxman Shelke
95.	020402	Nivruthi Tulshiram Zapde
96.	020409	Pandurang Govinda Muthe
97.	020410	Pandurang Tukaram Dhongade
98.	020411	Popat Namdev Dhongde
99.	020414	Ramchandra Narayan Bhavari
100.	020427	Tukaram Govinda Muthe
101.	020428	Tukaram Namdeo Nisrad
102.	020430	Valu Sakaram Dhongde
103.	020431	Valu Vitthal Dhongade
104.	020433	Vithal Dhondu Dhangar

VILLAGE - PIMPARKANE

TRIBE - MAHADEO KOLI

105.	020689	Arjun Khandu Pichad
106.	020701	Chendu Sahadu Thigale
107.	020707	Dagdu Raoji Pichad
108.	020710	Dhavalu Naju Pichad
109.	020726	Kalu Rama Pichad
110.	020739	Manohar Laxman Thigale
111.	020751	Pandurang Ganpat Pichad
112.	020754	Prakash Thaka Pichad
113.	020760	Ramdas Bhiva Thigale
114.	020763	Ravji Bhiva Thigale
115.	020768	Shankar Ladu Pichad

(1)	(2)	(3)
116.	020779	Tukaram Bhiva Thigale
VILLAGE - TITVI		TRIBE - MAHADEO KOLI
117.	020977	Aaba Dhondu Mundhe
118.	020978	Anajee Bandu Mundhe
119.	020998	Budha Narayan Mundhe
120.	021009	Dattu Tukaram Mundhe
121.	021013	Devram Ganga Mundhe
122.	021029	Goga Narayan Mundhe
123.	021030	Gopala Yesu Mundhe
124.	021054	Kisan Tukaram Mundhe
125.	021060	Laxman Bhau Mundhe
126.	021063	Laxman Rama Vayal
127.	021065	Laxman Trebanka Mundhe
128.	021066	Laxman Yesu Mundhe
129.	021072	Mangla Dagdu Koktare
130.	021078	Maruthi Vithu Bobde
131.	021088	Nivruthi Ganga Mundhe
132.	021096	Pandurang Rama Vayal
133.	021101	Rajaram Laxman Mundhe
134.	021104	Rama Punha Hile
135.	021139	Tukaram Sakaram Mundhe
136.	021140	Vaghu Gangaram Mundhe
137.	021145	Vithal Barkhu Vayal
138.	021147	Vithal Mahadu Bhangre
139.	021151	Yama Vithu Bobde

LIST OF CONTACTS

(A) BAIF ².

1. Mr. G.G. Sohani, Vice President
2. Mr. R.L. Chowdhary, Research Programme Coordinator
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4. Ms. Mona Dhamankar, Addnl. Programme Coordinator
5. Mr. Milind Shaligram, Jt. Programme Coordinator
6. Mr. B.K. Patil, Block Programme Officer
7. Mr. A.B. Bhide, Jr. Commercial Officer
8. Mr. S.S. Atole, Field Officer
9. Mr. N.H. Gole, Field Officer
10. Mr. R.S. Tajne, Field Officer
11. Mr. J.M. Koyte, Social Scientist
12. Mr. R.M. Dabhade, Jr. Engineer

(B) OTHERS

13. Mr. Darade, Range Forest officer, EGS, Bhandandara
14. Large number of beneficiaries

BATF STAFF IMPLEMENTING THE PROJECT

(A) FROM PUNE

1. Mr. Sachin Kanekar, Addn. Programme Coordinator
2. Mr. A.B. Bhide, Jr. Commercial Officer

(B) AT SITE

3. Mr. B.K. Patil, Block Programme Officer
4. Mr. S.S. Atole, Field Officer
5. Mr. N.H. Gole, Field Officer
6. Mr. R.S. Tajne, Field Officer
7. Mr. J.M. Koyte, Social Scientist
8. Mr. R.M. Dabhade, Jr. Engineer

